



BENCHMARKS

The University of North Texas Computing Center Newsletter

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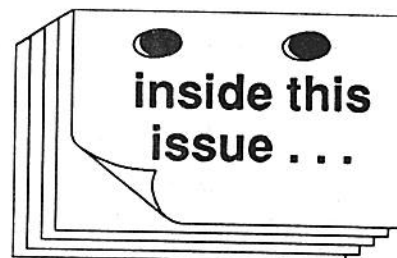
Computer Viruses Increase, Threaten Program and Data Integrity World-wide

By Dave Molta, Director of Academic Computing (BITNET: MOLTA@UNTVAX)

If your schedule is anything like mine, you probably think you have more important things to worry about than computer viruses. That's a pretty common attitude among microcomputer users, but if industry analysts are correct in their projections of the future implications of computer viruses, we had all better start taking this threat more seriously. Virus experts now estimate that over 160 computer viruses and 239 variants currently exist that are capable of infecting personal computers. Worse yet, this number is increasing on a weekly basis (see article on page 4 for more information). A number of the more "popular" strains have been found in computers at UNT, resulting in a significant loss of productivity for those people who have been infected.

Another somewhat discouraging detail of the current virus problem is that many analysts feel that we are very early in the "incubation stage" of many virus strains. Like viruses that infect the human body, computer viruses take a significant amount of time to propagate themselves. The amount of time varies, but at least one vendor of virus protection software asserts that the problems we are experiencing today are insignificant compared to what we will see 12 months from now. While we might legitimately question the virus vendor's objectivity in this regard, the logic underlying their conclusions appears to be sound. All one has to do is to look at the Macintosh arena; viruses began to spread among these machines at a much earlier date and the problem today is much more acute than is the case for MS-DOS PCs.

The obvious question to be posed by our microcomputer user community is "what is being done to combat this problem at UNT?" Part of the answer to this question can be found within this issue of *Benchmarks*. That is, we are attempting to disseminate information about the problem. Concurrent with our attempts to provide you with information, the Information Resources Council (formerly the Computing Council) has formed a committee, which I am chairing, whose charge is to develop a university policy on microcomputer data integrity. A draft policy has been formulated that places the primary responsibility for data integrity firmly in the hands of individual users. At the same time, we are attempting to develop appropriate mechanisms whereby individual users can be provided with the specialized applications necessary to protect their data. This includes, at a minimum, disk backup and virus scanning software. Thus, the Computing Center, as well as other decentralized computer support organizations, will maintain a suite of software tools aimed at preserving data integrity, but the responsibility for the data that resides on individual disks lies with the person who uses that machine on a daily basis.



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SERVICES AVAILABLE TO USERS OF THE UNT COMPUTING FACILITIES

The UNT Computing Center is located in the Information Sciences Building (ISB), Room 119. Phone Numbers:

Computing Center: (817) 565-2324
HelpDesk: (817) 565-4050
Micro Support: (817) 565-2316, 565-2319
Graphics Lab: (817) 565-3479
ISB I/O Area: (817) 565-3890
BA I/O Area: (817) 565-2350

All personnel listed below can be contacted either by calling the Computing Center or by sending them electronic mail on MUSIC/SP (ID-codes follow each name. All IDs are on BITNET node UNTMUSIC).

Benchmarks - Claudia Lynch (AS04)

Information & ID-Codes; Disk Space Problems - Theresa Russell

Statistical/Research Support - George Morrow (AS01), Panu Sittiwong (AC09), Phanit Laosirirat (AC44)

Academic ADABAS/COM-PILETE - Cathy Hardy (AC55)

CRSP & COMPUSTAT Problems - Panu Sittiwong (AC09), Phanit Laosirirat (AC44)

Student Programming Problems - CSCI Dept., GAB Room 550; BCIS Dept., BA Room 152

Problems with JCL, Passwords, or Operating Systems; or Communication/Terminal Problems - Help Desk

Data Entry; Test Scoring & Analysis - Betty Grise

Administrative Applications - Coy Hoggard

Printout Retrieval - ISB or BA I/O Operators



DIALING-UP UNT COMPUTERS OVER THE TELEPHONE

Phone numbers for the Local Area Network (LAN) are:

300-2400 BAUD: (817) 565-3300
 300/1200 BAUD: (817) 565-3499
 300-9600 BAUD: (817) 565-3461
 300-9600 BAUD: D/FW METRO 429-6006, 429-9314

Area code 214 must dial 817 before the METRO #.

The numbers that accommodate multiple baud rates have an autobaud feature that requires you, once connection with the remote modem is made, to hit the <RETURN> key repeatedly so that the receiving modem can determine the appropriate baud rate. When you have established a communications link, the # prompt will appear on your screen and you can enter one of following CALL commands to connect with the computer of your choice.

CALL 8040 connects with the HDS/8083 (supports line editing or PCWS). Operating environments available are: MUSIC/SP.

CALL 3270 connects with the HDS/8083 through a 3270 protocol converter (supports full-screen editing). Operating environments are: MUSIC/SP, VM/CMS, ADABAS/COM-PILETE

CALL DEC connects with the VAXcluster (VMS)

CALL 780 connects with the Sequent (Unix)

CALL 3000 connects with the Libraries' HP-3000 (Bibliographic database).

Communications Settings

LAN addresses	Data Bits	Parity	Stop Bits
DEC, 3000	8	N	1
8040, 3270, 780, 6800	7	S	1

HOURS FOR UNIVERSITY OF NORTH TEXAS COMPUTER ACCESS AREAS : Spring 1991*

Location	Days	Times
Computing Center RJE	Sunday Monday-Saturday	Noon-Midnight 7 a.m. Mon.-Midnight Sat. (Open 24 hours/day)
ISB 110 Terminal Area	Sunday Monday-Thursday Friday Saturday	1-11:50 p.m. 8:00 a.m.-11:50 8:00 a.m.-5:50 p.m. 9 a.m.-8:50 p.m.
College of Business	Sunday Monday-Thursday Friday, Saturday	Noon-Midnight 8:15 a.m.-11:45 p.m. 8:15 a.m.-7:45 p.m.
GAB 550	Sunday Monday-Thursday Friday Saturday	2 p.m.-Midnight 8 a.m.-Midnight 8 a.m.-3 p.m. CLOSED
Graphics Lab	Sunday Monday-Thursday Friday Saturday	1 p.m.-Midnight 8 a.m.-Midnight 8 a.m.-9 p.m. 9 a.m.-9 p.m.
Willis Library	Sunday Monday-Thursday Friday Saturday	1 p.m.-Midnight 7:30 a.m.-Midnight 7:30 a.m.-9 p.m. 9 a.m.-9 p.m.

*Hours may vary. Check MUSIC/VAX News and/or posted schedules for exceptions.

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Virus experts now estimate that over 160 computer viruses and 239 variants currently exist that are capable of infecting personal computers. Worse yet, this number is increasing on a weekly basis . . .

While you are waiting for the University to formulate a policy, there are a number of steps you can take today in order to practice "safe computing." The first step is to maintain reasonably current backups of all critical data. A variety of hardware and software solutions are currently available, ranging from the Everex tape-backup system currently supported by Microcomputer Maintenance and the Computing Center to the PC-Backup utility included with PC-Tools, a popular utility application. By maintaining current backups, you attain some level of protection from viruses, but more importantly, you are protected from hardware failure. Keep in mind that when it comes to disk drives and associated media, the question is not *whether* it will fail, but rather *when* it will fail.

Backup is important because it offers protection from disk and media failure as well as some level of protection against virus infiltration. However, when it comes to virus protection, the best strategy is one of avoidance. Most viruses are transmitted via well-intended exchange of floppy disks. While many people will tell you that you should stay away from bulletin boards, the truth is that most BBS operators are extremely cautious and screen their applications very carefully. You are much more likely to acquire a virus by copying some software from a friend or associate's PC. If you are in the habit of doing this without taking any added precautions (see below), you're probably asking for trouble.

Even the most diligent backup regimen will not protect you from a virus infection since the virus itself, if not detected early, can result in corrupted backup

disks or tapes. The simplest form of virus protection software is scanning software. These applications, some of which are summarized on page 5, look for known virus "signatures" and report the corruption of specific files on your disk. Most of the better scanning packages allow for both command oriented directory and disk scanning (i.e. SCAN C:\) as well as resident scanning of all programs that are executed on your computer using a memory-resident application. While not fool proof, scanning software acquired from a reputable vendor has proven to be an effective means of identifying and eradicating known viruses.

The next level of protection, which is in many ways superior to scanning

currently connected to Novell networks, and when it comes to viruses, this is a mixed blessing. When properly configured, network servers are essentially immune to virus infection since the operating system allows the system manager to prevent executable files from being modified by ordinary users. However, if the system manager is negligent, a virus can spread to 50 or 100 PCs in a manner of minutes. If you are a network manager, you should be aware of the potential for disaster. If you are a user on a network, make sure the network manager is aware of the seriousness of this problem.

Some of you who are responsible for supporting other users or just interested in this topic may find it helpful to monitor the **comp.virus** discussion list via ANU News on the VAX. You can also get a personal subscription to the digested version of this list, **VIRUS-L**, on BITNET. To monitor **comp.virus** through ANU News, stop by the Computing Center and pick up a copy of the documentation, or just type ANU from the VAX command prompt (on-line

Another somewhat discouraging detail of the current virus problem is that many analysts feel that we are very early in the "incubation stage" of many virus strains.

software, is monitoring software that verifies the integrity of executable programs by comparing them to a predetermined description of the file, usually a CRC computation. If a file has changed in any way since it was last executed, the monitoring software will alert you to this fact. Some of the more sophisticated systems also protect against suspicious operating system directives and protect against accidental or malicious destruction of data.

One final item particularly relevant to UNT microcomputer users is the role of networks with respect to viruses. A large number of PCs at UNT are cur-

help is available). Some other virus and security-related news groups are listed on page 9.

While the threat of viruses is real, the problem is manageable if the community of users is well informed with regard to measures of protection available to them. We will make every attempt to keep you informed of developments in this area both in terms of new virus threats as well as emerging university policies aimed at protecting the integrity of PC-based data. If you have questions about this issue, contact Academic Computing Services, ISB 119 (565-2324). ■

Fears of Computer Virus Attack From Eastern Europe Grow

This article has been making the rounds on BITNET and the Internet. It is credited as being from: The Independent (UK), Sat 24.11.90, By Susan Watts, Science reporter.

The computer industry in Britain is being warned against an influx of malicious viruses from eastern Europe.

Governments and companies there use computers less widely than those in the West. The range of applications is limited and so programmers have time to write these destructive programs.

Bryan Clough, a computer consultant based in Hove, East Sussex, returned last week from Bulgaria with 100 viruses unknown in the West.

"People have been writing these as a form of protest against the authorities. Some are very good indeed...I am terrified of running them on my machine but until I do I will have no idea of what they are capable of", he says. Mr Clough predicts a wave of virus attacks on Britain, launched mainly through electronic message systems known as Bulletin boards. One bulletin board in Birmingham already believes it has been hit by Bulgarian viruses. These programs can corrupt or destroy data stored on a computer's hard disk. Jim Bates, who dismantles viruses for Scotland Yard's Computer Crime Unit, says "I'm having a hell of a job keeping up with the viruses coming through already. The problem is that we can only screen for viruses that we know about."

He warns the computer industry against rogue software from eastern Europe, Bulgaria and Russia are thought to harbour the most virulent viruses. The small but legitimate software industry in Bulgaria complains that programming is one of the few skills that the industry can exploit. Recent concern is killing off even this slim chance of gaining hard currency from overseas.

Part of the problem is that the authorities do not believe in copyright or patent protection for software. "Programmers are used to ripping off software" Mr Clough says, "so that they are expert at hacking into each others systems and planting viruses."

He found at least 30 people producing viruses in Bulgaria. Most are known to the police who can do little to stop them since the country has no laws against computer crime. Even in Britain which introduced legislation against hacking this summer, virus writers can be arrested only if they enter a computer system without authority or cause damage once inside.

Scotland Yard's anti-virus team can extradite foreign programmers who flout this law, if Britain has an extradition treaty with the country concerned. One of the most worrying of the virus-writers calls himself the "Dark Avenger". He has written a number of malicious programs, and Mr Clough believes he intends to plant these in Britain shortly. Virus detectives are dismantling one such program called "Nomenklatura," thought to have been written by this man.

Security experts in Britain fear programmers in the Soviet Union may soon follow Bulgaria's lead. The Soviet Union has no copyright laws, and some sections of the software industry are already using viruses as a way to punish those who steal

Victims Help Sought in Prosecution of Virus Author

This appeared in the December 11, 1990 VIRUS-L Digest. It was posted by Gene Spafford (spaf@cs.purdue.edu)

The Dallas prosecutor's office is going to move ahead and file charges against the author of the Scores [MAC] virus. To help get a handle on the scope of the damages done by the virus, they would appreciate hearing from people who have had the Scores virus. The information will not be used on an item-by-item basis in the trial, and you won't be called as a witness — they have lots of hard evidence already. However they need some information to show that the virus has caused extensive damage outside of EDS (where it was originally released).

If you are willing to help with this effort, send a letter to:

Lt. Walt Manning
Dallas Police Dept.
1840 Chestnut St.
Dallas, TX 75226

Include specifics on when your system(s) got hit with the Scores virus, any damage it did, and approximately what it took in terms of time and expense to clean your systems. Other data relating to the infection would be appreciated. ■

programs. One such virus displays the message "Lovechild in "Lovechild:in reward for stealing software" on the screen.

Less than two years ago there were only 20 or so virus programs around, now there are hundreds. In Bulgaria a new virus appears once a week, Mr Clough says. ■

Virus Protection Programs Available on the UNT BBS

By Billy Barron, VAX/Unix Systems Manager (BITNET: BILLY@UNTVAX)

The BBS has many virus protection programs for MS-DOS and Macintosh microcomputers. These programs are all either public domain (free) or shareware (minimal cost usually). These packages are not supported by Academic Computing Services and are use at your own risk.

Instructions for logging into the BBS are provided in the "Best of the BBS" section of this issue. The Kermit protocol must be used to download the files (see the Kermit bulletin on the BBS and/or the documentation with your communications package for instructions). The MS-DOS packages are in the IBM.IMMUNE area of the file transfers. The Macintosh packages are in the MAC.IMMUNE area.

MS-DOS Packages

- **FPROT.ARC** — F-Prot is one of the better PC virus packages. It provides all around protection (scanning, prevention, removal). It is free for individuals, but does cost for university computers. The downside of this package is that the future of the package is uncertain and support is non-existent. I would still recommend it highly.
- **MCAFFEE72.EXE** — McAfee is an excellent PC virus package. It also provides all around protection (scanning, prevention, removal). New versions come out on a regular basis (at least monthly and sometimes weekly). The current version is 72, but I would not be surprised if 73 or 74 was out by the time this article is printed. The only real negative is that this package is expensive. It is recommend to people with the money to purchase it and need a high level of support.

- **FSP14.ARC** — Flushot + is one of the older protection programs. Whereas programs such as F-Prot and McAfee target specific viruses, Flushot + attempts to prevent viruses in advance by looking for virus-like events occurring. Unfortunately, at times Flushot + becomes irritating because it thinks normal operations are virus related. This can be fixed by a somewhat involved configuration process. Also, Flushot + is shareware and does require a fee for use.
- **CHK4BOMB.ARC** — Check For Bomb is an old program which scans new executables for dangerous text strings and disk activity. Public domain.
- **VIRCHK.ARC** — Virus Check is a program which tries to use itself as bait so that it will be infected first. When infected it warns you that a virus has entered your system.
- **DELOUSE1.ARC** — Looks for changes in existing files which may be caused by a virus.
- **DPROTECT.ARC** — Drive Protect makes a hard or floppy disk read-only so that viruses will not be able to infect the disk. However, this program is useless when the disk needs to be occasionally written to.

Macintosh

- **DISINFE24.HQX** — Disinfectant is the best scanning/removal program for the Macintosh. It is very user-friendly. In fact, the help has a detailed description of all known Mac viruses and virus programs. Public domain. A must for any Macintosh user.
- **GK111.HQX** — Gatekeeper is the best virus prevention program for the Macintosh. It is extremely effective in this. The only exception is that it can not handle the WDEF virus. Also, though I have not tested this myself, I have heard that it does not work correctly in Novell Networks. Public domain.

- **GKAID11.HQX** — Gatekeeper Aid is a separate preventative program that handles the WDEF virus. Public domain.
- **ERADICATEM.HQX** — Eradicate'em is another preventative program that handles the WDEF virus. Public domain.
- **VIRUDET403.HQX** — Virus Detective is a virus prevention program that is highly configurable. The configurability allows you to let it detect viruses before the other packages come out with new releases to handle the new viruses. Shareware \$40.■

Anti-Viral Archives Available

The January 2, 1991 issue of the VIRUS-L Digest contained this posting by Jim Wright (jwright@uwila.cfh.hawaii.edu) concerning the "official" anti-viral archives of VIRUS-L/comp.virus. Wright states:

With the generous cooperation of many sites throughout the world, we are attempting to make available to all the most recent news and programs for dealing with the virus problem. Currently we have sites for Amiga, Apple II, Atari ST, IBMPC, Macintosh and Unix computers, as well as sites carrying research papers and reports of general interest.

If you have general questions regarding the archives, you can send them to this list or to me. I'll do my best to help. If you have a submission for the archives, you can send it to me or to one of the persons in charge of the relevant sites.

If you have any corrections to the lists, please let me know.

The files contained on the participating archive sites are provided freely on an as-is basis.

To the best of my knowledge, all files contained in the archives are either Public Domain, Freely Redistributable, or Shareware. If you know of one that is not, please drop us a line and let us know. Reports of corrupt files are also welcome.

PLEASE NOTE

The Managers of these systems, and the Maintainers of the archives, CANNOT and DO NOT guarantee any of these applications for any purpose. All possible precautions have been taken to assure you of a safe repository of useful tools.

E-mail Access to Archives

It is not necessary to use anonymous ftp to get files from the anti-viral archives (although anonymous ftp is the preferred method). One way to get access to the archives is through the BITFTP server at Princeton. Send a message to bitftp@pucc.bitnet with the body of the message containing the single word HELP. This should get you more information, and give you access to any archive site on the Internet.

The archives at Heriot-Watt are accessible using e-mail. Send a message to info-server@cs.hw.ac.uk with the message text: help

Both the Apple II and the Atari ST archives have mail servers which provide access to their archives. You may receive automatic updates of Macintosh anti-viral programs via e-mail. This is described in the Macintosh section.

You may also retrieve files from the SIMTEL-20 and the INFO-MAC archives by using one of the many mail servers which maintain a shadow archive of these sites. Send the message **help** to one of the listserv sites. A complete list of servers is contained in the IBMPC and Macintosh section.

Amiga Anti-viral Sites

- **cs.hw.ac.uk**

Dave Ferbrache (davidf@cs.hw.ac.uk).

NIFTP from Janet sites, login as "guest."

Electronic mail to (info-server@cs.hw.ac.uk). Main access is through mail server.

The master index for the virus archives can be retrieved as

request: virus
topic: index

The Amiga index for the virus archives can be retrieved as

request: amiga
topic: index

For further details send a message with the text **help**

The administrative address is (infoadm@cs.hw.ac.uk).

- **ms.uky.edu**

Sean Casey (sean@ms.uky.edu).

Access is through anonymous ftp. The Amiga anti-viral archives can be found in /pub/amiga/Antivirus. The IP address is 128.163.128.6

- **uk.ac.lancs.pdsoft**

Steve Jenkins (pdsoft@uk.ac.lancs.pdsoft).

Service for UK only; no access from BITNET/Internet/UUCP

- **ux1.cso.uiuc.edu**

Mark Zinzow (markz@vmd.cso.uiuc.edu).

Lionel Humel (humel@cs.uiuc.edu)

The archives are in /amiga/virus. There is also a lot of stuff to be

found in the Fish collection. The IP address is 128.174.5.59.

Apple II Anti-viral Sites

- **brownvm.bitnet**

Chris Chung (chris@brownvm.bitnet)

Access is through LISTSERV, using SEND, TELL and MAIL commands. Files are stored as apple2-1xx-xxxxx where x's are the file number.

- **cs.hw.ac.uk**

Dave Ferbrache (davidf@cs.hw.ac.uk).

NIFTP from Janet sites, login as "guest."

Electronic mail to (info-server@cs.hw.ac.uk). Main access is through mail server.

The master index for the virus archives can be retrieved as

request: virus
topic: index

The Apple II index for the virus archives can be retrieved as

request: apple
topic: index

For further details send a message with the text **help**

The administrative address is (infoadm@cs.hw.ac.uk).

- **uk.ac.lancs.pdsoft**

Steve Jenkins (pdsoft@uk.ac.lancs.pdsoft).

Service for UK only; no access from BITNET/Internet/UUCP

Atari ST Anti-viral Sites

- **cs.hw.ac.uk**

Dave Ferbrache (davidf@cs.hw.ac.uk).

NIFTP from Janet sites, login as "guest."

Electronic mail to (info-server@cs.hw.ac.uk). Main access is through mail server.

The master index for the virus archives can be retrieved as

request: virus
topic: index

The Atari ST index for the virus archives can be retrieved as

request: atari
topic: index

For further details send a message with the text **help**

The administrative address is (infoadm@cs.hw.ac.uk).

- **panarthea.ebay**

Steve Grimm (koreth%panarthea.ebay@sun.com).

Access to the archives is through the mail server. For instructions on the archiver server, send **help** to (archive-server%panarthea.ebay@sun.com).

- **uk.ac.lancs.pdsoft**

Steve Jenkins (pdsoft@uk.ac.lancs.pdsoft).

Service for UK only; no access from BITNET/Internet/UUCP

Docs Anti-Viral Sites

- **cert.sei.cmu.edu**

Kenneth R. van Wyk (krvw@sei.cmu.edu).

Access is available via anonymous ftp, IP number 128.237.253.5.

This site maintains archives of all VIRUS-L digests, all CERT advisories, as well as a number of informational documents.

VIRUS-L/comp.virus information is in:

pub/virus-l/archives
pub/virus-l/archives/predig
pub/virus-l/archives/1988
pub/virus-l/archives/1989
pub/virus-l/archives/1990
pub/virus-l/docs

CERT information is in:

pub/cert_advisories
pub/cert-tools_archive

- **csrc.ncsl.nist.gov**

John Wack (wack@ccf.ncsl.nist.gov).

This site is available via anonymous ftp, IP number 129.6.48.87.

The archives contain all security bulletins issued thus far from organizations such as NIST, CERT, NASA-SPAN, DDN, and LLNL-CIAC. Also, other related security publications (from NIST and others) and a partial archive of VIRUS-L's and RISK forums.

- **cs.hw.ac.uk**

Dave Ferbrache (davidf@cs.hw.ac.uk).

NIFTP from Janet sites, login as "guest."

Electronic mail to (info-server@cs.hw.ac.uk). Main access is through mail server.

The master index for the virus archives can be retrieved as

request: virus
topic: index

The index for the ****GENERAL**** virus archives can be retrieved as

request: general
topic: index

The index for the ****MISC**** virus archives can be retrieved as

request: misc
topic: index

****VIRUS-L**** entries are stored in monthly and weekly digest form from May 1988 to December 1988. These are accessed as log.8804 where the topic substring is comprised of the year, month and a week letter. The topics are:

8804, 8805, 8806 - monthly digests up to June 1988
8806a, 8806b, 8806c, 8806d, 8807a .. 8812d - weekly digests

The following daily digest format started on Wed 9 Nov 1988. Digests are stored by volume number, e.g. request: virus topic: v1.w would retrieve issue 2 of volume 1, in addition v1.index, v2.index and v1.contents, v2.contents will retrieve an index of available digests and a extracted list of the contents of each volume respectively.

****COMPRISKS**** archives from v7.96 are available on line as:

request: comp.risks
topic: v7.96 where topic is the issue number, as above
v7.index, v8.index and
v7.contents and v8.contents will retrieve indexes and contents lists. For further details send a message with the text **help**

The administrative address is (infoadm@cs.hw.ac.uk).

- **uk.ac.lancs.pdsoft**

Steve Jenkins (pdsoft@uk.ac.lancs.pdsoft).

Service for UK only; no access from BITNET/Internet/UUCP

- **unma.unm.edu**

Dave Grisham (dave@unma.unm.edu).

This site has a collection of ethics documents. Included are legislation from several states and policies from many institutions.

Access is through ftp, IP address 129.24.8.1. Look in the directory /ethics.

IBMPC Anti-Viral Sites

- **cs.hw.ac.uk**

Dave Ferbrache (davidf@cs.hw.ac.uk).

NIFTP from Janet sites, login as "guest."

Electronic mail to (info-server@cs.hw.ac.uk). Main access is through mail server.

The master index for the virus archives can be retrieved as

request: virus
topic: index

The IBMPC index for the virus archives can be retrieved as

request: ibmpc
topic: index

For further details send a message with the text **help**

The administrative address is (infoadm@cs.hw.ac.uk).

- **ms.uky.edu**

Daniel Chaney (chaney@ms.uky.edu).

This site can be reached through anonymous ftp. The IBMPC anti-viral archives can be found in /pub/msdos/AntiVirus. The IP address is 128.163.128.6

- **mibsrv.mib.eng.ua.edu**

James Ford (JFORD@UA1VM.BITNET) (JFORD@MIBSRV.MIB.ENG.UA.EDU)

This site can be reached through anonymous ftp. The IBM-PC anti-virals can be found in pub/ibm-antivirus. Uploads to pub/ibm-antivirus/00uploads. Uploads are screened. Requests to JFORD@UA1VM.BITNET for UUCODED files will be filled on a limited basis as time permits. The IP address is 130.160.20.80.

- **uk.ac.lancs.pdsoft**

Steve Jenkins (pdsoft@uk.ac.lancs.pdsoft).

Service for UK only; no access from BITNET/Internet/UUCP

- **ux1.cso.uiuc.edu**

Mark Zinzow (markz@vmd.cso.uiuc.edu).

This site can be reached through anonymous ftp. The IBMPC anti-viral archives are in /pc/virus. The IP address is 128.174.5.59.

- **vega.hut.fi**

Timo Kiravuo (kiravuo@hut.fi)

This site (in Finland) can be reached through anonymous ftp. The IBMPC anti-viral archives are in /pub/pc/virus. The IP address is 130.233.200.42.

- **wsmr-simtel20.army.mil**

Keith Peterson (w8sdz@wsmr-simtel20.army.mil).

Direct access is through anonymous ftp, IP 26.2.0.74. The anti-viral archives are in PD1:<MSDOS.TROJAN-PRO>. Simtel is a TOPS-20 machine, and as such you should use "tenex" mode and not "binary"

mode to retrieve archives. Please get the file 00-INDEX.TXT using "ascii" mode and review it offline.

NOTE: There are also a number of servers which provide access to the archives at simtel. WSMR-SIMTEL20.Army.Mil can be accessed using LISTSERV commands from BITNET via LISTSERV@NDSUMVM1, LISTSERV@RPIECs and in Europe from EARN TRICKLE servers.

Macintosh Anti-viral Sites

- **cs.hw.ac.uk**

Dave Ferbrache (davidf@cs.hw.ac.uk).

NIFTP from Janet sites, login as "guest."

Electronic mail to (info-server@cs.hw.ac.uk). Main access is through mail server.

The master index for the virus archives can be retrieved as

request: virus
topic: index

The MAC index for the virus archives can be retrieved as

request: mac
topic: index

For further details send a message with the text **help**

The administrative address is (infoadm@cs.hw.ac.uk).

- **ifi.ethz.ch**

Danny Schwendener (macman@ethz.uucp).

Interactive access through DECnet (SPAN/HEPnet):

\$SET HOST 57434 or \$SET
HOST AEOLUS
Username: MAC

Interactive access through X.25 (022847911065) or Modem 2400 bps (+41-1-251-6271):

CALL B050 <cr> <cr>
Username: MAC

Files may also be copied via DECnet (SPAN/HEPnet) from 57434::DISK8:[MAC.TOP.LIBRARY.VIRUS]

- **rascal.ics.utexas.edu**

Werner Uhrig (werner@rascal.ics.utexas.edu)

Access is through anonymous ftp, IP number is 128.83.138.20. Archives can be found in the directory mac/virus-tools. Please retrieve the file 00.INDEX and review it offline. Due to the size of the archive, online browsing is discouraged.

- **scfvm.bitnet**

Joe McMahon (xrjdm@scfvm.bitnet)

Access is via LISTSERV. SCFVM offers an "automatic update" service. Send the message **AFD ADD VIRUSREM PACKAGE** and you will receive updates as the archive is updated. You can also subscribe to automatic file update information with **FUI ADD VIRUSREM PACKAGE**.

- **sumex-aim.stanford.edu**

Bill Lipa (info-mac-request@sumex-aim.stanford.edu).

Access is through anonymous ftp, IP number is 36.44.0.6. Archives can be found in /info-mac/virus.

Administrative queries to (info-mac-request@sumex-aim.stanford.edu). Submissions to (info-mac@sumex-aim.stanford.edu).

There are a number of sites which maintain shadow archives of the info-mac archives at sumex:

- * MACSERV@PUCC — services the BITNET community
- * LISTSERV@RICE — for e-mail users
- * FILESERV@IRLEARN — for folks in Europe.

- **uk.ac.lancs.pdsoft**

Steve Jenkins (pdsoft@uk.ac.lancs.pdsoft).

Service for UK only; no access from BITNET/Internet/UUCP

- **wsmr-simtel20.army.mil**

Robert Thum (rthum@wsmr-simtel20.army.mil).

Access is through anonymous ftp, IP number 26.2.0.74. Archives can be found in PD3:<MACINTOSH.VIRUS>. Please get the file 00README.TXT and review it offline.

Unix Anti-viral Sites

- **cs.hw.ac.uk**
Dave Ferbrache (davidf@cs.hw.ac.uk).
NIFTP from Janet sites, login as "guest."
Electronic mail to (info-server@cs.hw.ac.uk). Main access is through mail server.
The master index for the virus archives can be retrieved as
request: virus
topic: index
For further details send a message with the text **help**
The administrative address is (infoadm@cs.hw.ac.uk).
- **funic.funet.fi**
Jyrki Kuoppala (jkip@cs.hut.fi)
Accessible through anonymous ftp, IP number 128.214.6.100. Directory pub/unix/security contains programs to help in security, pub/doc/security contains various documents about security in general and unix security (like the worm documents).
- **wuarchive.wustl.edu**
Chris Myers (chris@wugate.wustl.edu).
Accessible through anonymous ftp, IP number 128.252.135.4. A number of directories can be found in ~ftp/usenet/comp.virus/*. ■

Viral and Security Related Interactive Mailing Lists

The following collection was contained in the *VIRUS-L Digest* December 17, 1990. *VIRUS-L* is described in the "List of the Month" on page 16

- **EXPER-L%TREARN.BITNET@VM1.NODAK.EDU**
BITNET users may subscribe by sending the following command via interactive message or e-mail to **LISTSERV@TREARN: SUB EXPER-L Your full name** where *Your full name* is your real name, not your login ID. Non-BITNET users can join the list by sending the above command as the only line in the text/body of a message to **LISTSERV%TREARN.BITNET@VM1.NODAK.EDU**.
- **SECURITY@IAM.RUTGERS.EDU**
All requests to be added to or deleted from this list, problems, questions, etc. should be sent to **SECURITY-REQUEST@IAM.RUTGERS.EDU**.
There is a BITNET sub-distribution list, **SECURITY@UGA**; BITNET subscribers can join by sending the SUB command with your name. To be removed from the list send the command: **SIGNOFF**.
- **TOPS-20@SCORE.STANFORD.EDU**
To subscribe send mail to **TOPS-20-REQUEST@SCORE.STANFORD.EDU**.
- **ASSMPC-L%USACHVM1.BITNET@VM1.NODAK.EDU**
BITNET users may subscribe by sending the following command via interactive message or e-mail to **LISTSERV@USACHVM1.BITNET** with the text/body of the message being: **SUB ASSMPC-L your full name**. Non-BITNET users can join the list by sending the above command as the only line in the text/body of a message to **LISTSERV%USACHVM1.BITNET@VM1.NODAK.EDU**.
Please note that the link to Chile is connected at 18:00 hrs EDT; before that time interactive commands won't work.
- **PCSUPT-L%YALEVM.BITNET@CUNYVM.CUNY.EDU**
To subscribe send the following command to **LISTSERV@YALEVM** (non-BITNET users send mail to **LISTSERV%YALEVM.BITNET@CUNYVM.CUNY.EDU**): **SUBSCRIBE PCSUPT-L Your full name**. To unsubscribe, send the command: **UNSUBSCRIBE PCSUPT-L**.
- **RISKS@CSL.SRI.COM**
All requests to be added to or deleted from this list, problems, questions, etc., should be sent to **RISKS-REQUEST@CSL.SRI.COM**.
- **Comp-Soc@LIMBO.INTUITIVE.COM**
All requests to be added to or deleted from this list, problems, questions, etc. should be sent to the coordinator.
Coordinator: Dave Taylor (taylor@LIMBO.INTUITIVE.COM) ■

The June 1990 issue of *Benchmarks* (Vol. 11 No. 4) focused on "Computer Security and Social Responsibility." More information about viruses is printed there. Back issues are available, upon request, from the Computing Center reception area (ISB 119). ■

Academic MVS Upgraded

By Dr. Philip Baczewski, Academic Mainframe User Services Manager (BITNET: AC12@UNTVMS)

The academic MVS/SP system was down from January 2 until January 9, 1991, so that it could be upgraded to MVS version 1.3.5 and JES2 version 1.3.6. In addition, various program products were also be upgraded to current releases. There should be little or no change, however, in running user jobs on the new MVS system. The following is a list program products that were upgraded and their current versions:

Product	New Version
Assembler H	Version 2, Release 1
VS COBOL II Compiler and Library	Release 3.0
PLI Composite Package	Release 5.1
TMS (Tape Management System)	CA-1
VS FORTRAN	Version 2, Release 4.0

While every effort has been made to make sure that all software systems are functioning as before, it's possible that some problems still may be uncovered. If you experience any unusual problems running jobs under MVS, please contact the Computing Center and let us know (ISB 119 - ext. 2324). ■

SPSS Available on VM/CMS

The Computing Center has acquired and installed SPSS-X version 4.1 on the HDS-8083 Academic mainframe under the VM/CMS operating system. The modules included are Basic, Advanced Stat, and LISREL 7.

SPSS-X for CMS can be executed interactively or as a batch process. The following command sequence shows the steps to execute SPSS-X in the batch mode.

```
Ready;
NTLINK SPSS      (CMS Command to Link to the SPSS mini-disk)
Link to SPSS established; Return code was: 0
Ready;
SPSS filename     (Execute the SPSS program. Filename is the name of a CMS file which
                  contains all SPSS commands. Its file type should be SPSS.)
```

After the job has executed, all the output from the procedure will be stored in a new file called **filename LISTING** in your CMS A disk.

To run SPSS-X interactively, issue the following commands:

```
NTLINK SPSS
SPSS *
```

Currently, we are in the process of producing an Introductory Handout, and expect to have it ready by the end of January. You can stop by the Computing Center main office (ISB-119) or the ISB-110 lab to pick up a copy. Please refer to the November/December 1990 issue of *Benchmarks* for the complete list of current SPSS-X version 4 documents. ■

SPSS Available for the Macintosh

Academic Computing Services has recently acquired the site license of SPSS for Macintosh microcomputers. The software is available to all faculty and staff members. It can also be installed in the Macintosh computers which are owned by the University.

Currently, the Basic Stat. and Adv. Stat. modules are available. It has the same functionality of the SPSS mainframe version, and can be used to analyse large data sets which are too big for the SPSS/PC+ version.

SPSS can be run on the Macintosh Plus, SE, SE30 and MacII with a minimum of 2m of memory (4m is recommend). A math-coprocessor is not required, and it will take about 10m of hard disk space.

Please contact Panu Sittiwong at ext. 2324 to arrange to have the software installed on your Macintosh. ■

Latest Version of the IMSL Library Installed

The latest version of the International Math and Statistical Library (IMSL) has been installed on the HDS 8083 (IBM compatible mainframe). This three-part library contains the MATH/LIBRARY V.1.1, STAT/LIBRARY V.1.1, and SFUN/LIBRARY V.2.1 (collectively referred to as IMSL V.1.1).

The previous version IMSL V.1.0 had the facility to translate calls to the old IMSL 9.2 edition into the equivalent IMSL v.1.0 routine. The present version 1.1 will not do that, and will require that you use the current name for the desired routine. Quick Reference

Guides to the Math, Statistical, and Special Functions list these current names along with brief descriptions and are available from George Morrow in Academic Computing Services (ext 2324).

As before, the routines are called from a VS FORTRAN program that is compiled and linked using the FORVCLG procedure. ■

New Lotus Product Deemed Invasion of Privacy by Some

By Claudia Lynch, *Benchmarks* Editor
(BITNET: AS04@UNTVMI)

Lotus Development Corp. is gearing up to release a new product, that is causing quite a stir. *Household Marketplace* is to be sold to direct marketing companies. It is a database contained on a CD-ROM, which includes profiles of 120 million American households and 80 million consumers.

The database includes a consumer's surname, address, age group, gender, marital status, *estimated* income, lifestyle (as defined by neighborhoods like high income, middle income, etc.), and purchase propensity.

Since the database does not contain any of the data covered by the Fair Practices Act, right to privacy is not technically an issue. Many people are concerned, however, that Lotus will not let individuals examine their entries to make sure they are correct (Lotus gets all of its information for the database from Equifax Marketing Decisions System in New Jersey). Also, there doesn't appear to be any way to correct information, should you find out that it is incorrect.

Lotus will remove anyone from their database upon request (800-225-5800). Write to:

Lotus Development Corporation
Attn: Marketplace Name Removal Service
55 Cambridge Parkway
Cambridge, MA 02142 ■

OS/MVS JCL: The Sequel

by Cathy Hardy, Academic Database Consultant (BITNET: AC55@UNTVMI)

This is the second in a series of articles dealing with JCL (job control language). This series is aimed at the current JCL user who would like to have a better understanding of statement use and coding options. If you are not currently a JCL user, but would like to begin learning about JCL, Academic Computing has a free handout available in ISB 119. Stop by and ask for "IBM Job Control Language," or contact an Academic Mainframe Users Support consultant for further information.

The operand field in a JCL control statement is made up of two types of parameters: **positional** and **keyword**. Positional parameters must be coded first in the operand field in a specific order. (See Benchmarks Nov/Dec pg. 13) A keyword parameter consists of a keyword followed by an equal sign and variables.

Keyword Parameters

Keyword parameters can be coded in any order in the operand field after positional parameters, if any, appear. Parameters are separated by a comma, no blanks are allowed. A list of variables (a subparameter list) for a keyword must be enclosed in parentheses.

```
//INPUT DD DSN=USER.XXNN.CLASS.1991,UNIT=SYSDA,  
// VOL=SER=ACAD01,DISP=(NEW,KEEP,DELETE),  
// DCB=(LRECL=80,RECFM=FB,BLKSIZE=800),  
// SPACE=(TRK,(1,1),RLSE)
```

In the example above, DSN, UNIT, VOL, DISP, DCB, and SPACE are keywords. The keywords DISP, DCB, and SPACE use subparameter lists which are enclosed in parentheses. The keyword parameters most commonly used are:

- | | |
|----------|----------|
| • DCB | • DDNAME |
| • DISP | • DSNAME |
| • LABEL | • SPACE |
| • SYSOUT | • UNIT |
| • VOLUME | |

DCB — The DCB (data control block) parameter gives information about a data set. The subparameters for the DCB keyword include:

- **DSORG** - (data set organization) Specifies the organization of the data set and indicates if the data set contains any location-dependent information that would make the data set unmovable.
- **RECFM** - (record format) Specifies the format and characteristics of the records in the data set.
- **OPTCD** - (option code) Specifies the optional services to be performed by the control program.
- **BLKSIZE** - (block size) Specifies the maximum length, in bytes, of a block. The minimum length is 18. The largest number allowed is 32,760 (except for blocks of ASCII records on magnetic tape where the maximum length is 2048).
- **LRECL** - (logical record length) Specifies the length, in bytes, for fixed-length records OR it specifies the maximum length, in bytes, for variable-length records. The length cannot exceed the blocksize (BLKSIZE) for U or F format records.

DDNAME — The DDNAME parameter allows you to postpone the definition of a data set until later in the same job step. In the case of cataloged and in-stream

General Information

procedures, it allows you to postpone definition until the procedure is called by a job step.

DISP — The DISP parameter describes the status of the data set and how you want the system to handle the data set if the step completes successfully or abends. DISP is required unless the data set is created and deleted in the same step.

DISP=(current-status,normal-end,abend)

The options for current-status include:

- NEW (default)
- OLD
- , (NEW is assumed and normal-end disposition follows)
- MOD (to modify sequential data sets)
- SHR (sharing input data sets)

The options for normal-end include:

- KEEP
- PASS (to be used in a subsequent job step)
- UNCATLG
- DELETE
- CATLG
- , (a new data set will be deleted and an old data set (existing before execution of the job) is kept if step completes successfully and abend disposition follows)

The options upon abend include:

- KEEP
- CATLG
- DELETE
- UNCATLG

DSNAME — This parameter specifies the data set name. For new data sets, the name specified is assigned to the data set; for existing data sets, the system uses the name to locate the data set on volume. The naming convention for students' files at UNT is:

USER.XXNN.CLASS.VARIABLE

where XXNN is your userid, CLASS is the 4 digit course number for your class, and VARIABLE is a name you've chosen to identify the contents of your file. For example: USER.AC55.4630.INVENTORY is a valid data set name at UNT.

LABEL — The LABEL parameter indicates the type and contents of the magnetic tape label.

SPACE — SPACE indicates the amount of space which should be allocated on a direct access volume for a new data set.

- SPACE=(unit,(primary,secondary),disposition)
- Units - tracks (TRK), cylinder (CYL), or blocklength
- Primary - number of units to be allocated
- Secondary - number to be allocated if additional space is required
- This allocation can be done up to 16 times (extents) for each volume.
- Disposition - (RLSE) release extents not used (see IBM JCL manual for other subparameters).

SYSOUT — This parameter assigns an output class to an output data set associated with the output device to which you want your output data set written.

- SYSOUT=class where class can be any alphanumeric character.
- SYSOUT=A is traditionally the printer.

UNIT — The UNIT parameter specifies the types and number of devices you want assigned to a data set.

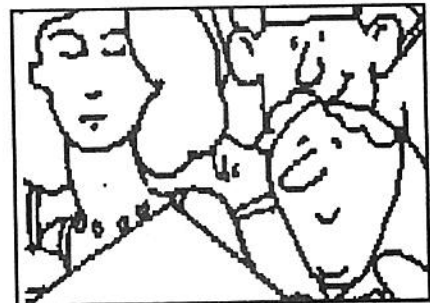
- UNIT=SYSDA requests DASD.

VOLUME — VOLUME identifies the DASD volume on which the data set resides (or will reside).

- VOLUME=ACAD00
- VOLUME=ACAD01
- VOLUME=ACAD02
- VOLUME=ACAD03

ACAD00 and ACAD03 are reserved for faculty research. ACAD01 is reserved for College of Business instructional data sets. ACAD02 is for all other departments' instructional data sets.

For additional information on keyword parameters in DD statements, check your IBM JCL manual. ■



BENCHMARKS FORUM

BENCHMARKS FORUM is intended to serve as a vehicle for answering questions that may be of general interest to the user community. If you have a question, please send electronic mail to the Benchmarks editor (BITNET: AS04@UNTVM1) or write it down and drop it by the Computing Center. We will try to answer it in the next issue.

Question: I have been hearing a lot about viruses lately? I tend to think of this kind of talk as mainly hysterical. Have there been actual viruses encountered here at UNT?

Answer: Unfortunately, the virus talk you have been hearing around campus lately is probably true. Viruses have become a major problem for colleges, universities, and businesses

throughout the world. In many cases, the viruses are politically motivated and can be viewed as electronic terrorism. No one is safe from viruses, even if he or she only purchases software from major corporations. Viruses have been detected in software that has arrived, shrink-wrapped, straight from the factory.

The only sure way to protect yourself from a virus is to practice safe computing.

- Make daily backups of critical data.
- Obtain some type of virus protection program for your microcomputer(s).
- Use the virus protection program that you obtain according to its instructions.
- Don't execute unknown programs that suddenly "appear" in your reader on CMS or that you find on your VAX or MUSIC accounts.

Here at UNT, we have had a variety of the more "popular" viruses making the rounds. In several cases, there have been multiple infections — two or more viruses being present at the same time. Following is a list of viruses that have been reported to the Computing Center.

- Sunday (DOS)
- Pakistani Brain (DOS)
- Jerusalem - Friday 13th (DOS)
- Ping-Pong (DOS)
- Stoned (DOS)
- Merrit - Alameda (DOS)
- WDEF A&B (MAC)
- INIT 29 (MAC)
- nVIR (MAC)
- ANTI (MAC)
- Scores (MAC) ■

Benchmarks Reader/User feedback is encouraged. Send all letters, suggestions, etc to (AS04@UNTVM1), FAX 817-565-4060 or to the Benchmarks Editor at:

Academic Computing Services
University of N. Texas
Computing Center
P.O. Box 13495
Denton, Texas 76203



Information Resources Council News

The Information Resources Council (IRC — formerly the Computing Council) is comprised of MEMBERS: Chairman Ray Vondran, Dave Barker, Cengiz Capan, Carolyn Cunningham, Paul Fisher, Frank Forney, Chuck Fuller, Paul Schlieve, Steve Miller, Don Palermo, John Todd, Don Grose, Tom Newell and EX-OFFICIO MEMBERS: Richard Harris, Coy Hoggard, Dave Molta. Beginning with this issue, IRC minutes will be a regular feature of Benchmarks. Sue Harrison, IRC Recording Secretary and Computing Center Administrative Assistant, will provide the minutes.

The Information Resources Council met on Tuesday, December 18, 1990 and conducted items of business which are briefly summarized here:

Chairman Ray Vondran reported that the Information Resources Strategic Plan had been approved by the Information Resources Steering Committee and the University Planning Council and has been sent to the Department of Information Resources (DIR).

The IRC Subcommittee's report on General Access Computing Labs was sent to the Information Resources Steering Committee and discussed by its members at two separate meetings, at the conclusion of which the report was approved with one exception, which was the requirement of the matching funds formula on the part of the schools and colleges. The Vice Presidents were concerned about having to establish new student fees, or increase existing ones; and decided to consider this issue further at another meeting scheduled for January.

Dave Molta reported that the the Solbourne computer should be here in January. His subcommittee, in working on a policy for determining who will be able to use the new machine, has decided that for the Spring semester researchers will have access but that instructional use will not be made available until Fall, 1991. This policy will be considered for approval by the IRC at the January 15 meeting.

The schedule for meetings of the IRC for Spring Semester, 1991, will be as follows:

- | | |
|--------------|---------------|
| • January 15 | • February 19 |
| • March 19 | • April 23 |
| • May 21 | |

There was an informal discussion regarding expansion of the IRC to include representatives from Human Resource Management, School of Community Service and College of Music. This item will be formally addressed at the January 15 meeting. It was also decided that a summary of each IRC meeting's minutes will be written and published in BENCHMARKS in an effort to inform the University community of the actions taken by the IRC.

The current policy for granting mainframe access was discussed, the consensus being that a formal review will be conducted at the January 15 meeting.

Chairman Vondran stated that he would like to begin the University's long-range planning process for information resources and suggested a mini-retreat with invited guests who could provide insights and guidance to the Council on planning issues.

Dave Molta presented a policy on dealing with Microcomputer Data Integrity in a Distributed Computing Environment. There is great concern that microcomputer

users are not taking necessary precautions to protect data stored on their computers. Sue Pierce reported on the experience with the virus that hit their network; and it was stressed that, in view of the expansion of networking on campus, prevention of virus infection is a critical issue which must be addressed soon. Chairman Vondran asked Dave to chair a subcommittee consisting of Jim Curry and John Todd to look at possible solutions to this issue prior to the Jan. 15 meeting at which time the IRC will consider recommendations. ■

E-Mail — How Private Is It?

Excerpted from the Brown University Computing & Information Resources Newsletter The Open Window (December 1990).

E-mail has many advantages. It is extremely fast (often instantaneous, even across the world) and inexpensive. E-mail is also environmentally sound since it does not require the use of paper or envelopes. Collaboration between researchers in different locations is facilitated, as is document exchange. Because of these and other benefits, many computer users rely heavily upon e-mail. There are, however, some security issues you should be aware of.

Security Considerations

E-mail sent from one account to another on the same machine is largely safe from prying eyes, because it never leaves the machine when travelling from the sender to the recipient. There is no opportunity for anyone, save the local system programmers, from peeking at it.

In addition, single machine e-mail is very difficult to forge. Unless you know someone else's password or find a terminal accidentally left logged in, you

Staff Activities

- **Professional Activities.** Claudia Lynch, *Benchmarks* Editor, co-authored a paper with Dr. Rosemary Killam of the College of Music entitled "In Our Own Voices: Women Academic Musicians." Dr. Killam presented this paper on October 26, 1990 at a general session of The College Music Society's annual meeting held in Washington, D.C.

Dr. Philip Baczewski, Academic Mainframe User Services Manager and *Benchmarks* Associate Editor, co-authored a paper with Dr. Killam entitled "New Developments in Computer-Supported Aural Pedagogy." Dr. Killam presented this paper at a poster session of the Society for Music Theory's annual meeting held on November 11, 1990 in Oakland, California. Dr. Baczewski co-authored another paper with Dr. Killam, "Melodic Character Versus Position in the Perception of a two-voice Musical Structure." He presented this paper at the 120th meeting of the Acoustical Society of America in San Diego, California on November 28, 1990.

Cathy Hardy, Academic Database Consultant, received her Master of Business Administration degree from UNT in December, 1990.

- **Service Recognition Awards.** The following Computing Center employees were honored at the Service Recognition Awards Ceremony on December 11, 1990.

- | | |
|----------------------------------|----------------------------------|
| • Betty Grise — 20-year award | • Rabon Sanders — 20-year award |
| • Stanley Sawyer — 20-year award | • Charles Ridens — 15-year award |
| • Janice Green — 10-year award | • Dave Molta — 5-year award |
| • Marilyn Rice — 5-year award | |

- **New Employees.** The following employees have been hired since September, 1990.

- | | |
|--|--|
| • Joy Aswalap — HRMIS Team | • Marc St.-Gil — Academic Computing |
| • Richard Baker — Part-time Graphics Lab | • Summangala Bhattacharya — Part-time Graphics Lab |
| • Kenneth Corey — Part-time, VAX Operator | • Marlane Marton — Part-time, I/O Consultant |
| • Lee Oldham — Part-time, I/O Consultant | • Jerry Morgan — Part-time, I/O Consultant |
| • Homeira Rezaie — Part-time, I/O Consultant | • Anthony Henderson — Part-time, Job Distribution |

- **Employee Departures.** The following employees have resigned since September, 1990.

- | | |
|---|--|
| • Robert Block — Computing Technical Services | • Michael Kelley — HRMIS |
| • Tanya Anderson — Microcomputer Support | • Larry Michalewicz — VAX Operator |
| • Lynne Rutherford — Computer Operations | • Marilyn Rice — Microcomputer Support ■ |

can't send e-mail from someone else's account (or pretend to).

For these reasons, many people have become reliant upon the implicit security that individual users on a single machine provide.

With the advent of widespread networking, however, e-mail is no longer so simple and secure. Since many dissimilar machines have to be able to transfer information intelligibly, they must converse in a common language, and this language must be simple (in fact, it's called Simple Mail Transport Protocol — SMTP for short). This need for easy exchangeability has created some holes in e-mail security.

First, privacy is not guaranteed. E-mail sent to a colleague on the other side of the country will pass through anywhere between ten and fifty other computers before arriving at its destination. Any system programmer or system manager on any of these computers en route can look at your e-mail.

In addition, there is almost no authentication of the source of the e-mail since e-mail can come from anywhere in the world, from any machine type, and from any conceivable username. Because of this, it's quite easy — much easier than most people realize — to forge e-mail. It's possible for me to send you e-mail which appeared to be from your friend, your boss, or even the President of the United States.

How to Protect Yourself

Here's what you can do to protect yourself against these sorts of problems:

- ① If you receive e-mail that just doesn't seem right, contact the sender (preferably by telephone or some other non-computer means) and see if they really sent it. If they didn't, report the incident to your system administrator (Billy Barron (BILLY@UNTVAX) for the VAX and Dr. Philip Baczewski (AC12@UNTVMI) for MUSIC and CMS — 565-2324).

Continued on page 16.

THE BITNET CONNECTION



By Dr. Philip Baczewski, BITNET INFOREP (BITNET: AC12@UNTVMI)

*This Column is a continuing feature of **Benchmarks** intended to present news and information on various aspects of the BITNET wide area network.*

You Can't be Too Careful

If you've read this far, you know that this edition of *Benchmarks* has the topic of computer viruses as its focus. (If you turned directly to this column, without reading any of the preceding material, then 1.) you now know what the focus of this issue is; 2.) I'm really excited that you read my column first; and 3.) maybe you should start a "BITNET Connections" fan club.) Unfortunately, not even BITNET is immune to viruses, and as this edition is in preparation a previously unknown BITNET virus has been described in messages from several BITNET mailing lists.

The latest virus to hit BITNET is a file called GAME2 MODULE or possibly TERM MODULE which might show up on your CMS reader. This file might be more accurately classified as a "Trojan Horse," in other words, a program which appears to do one thing but actually does something else, usually something fairly nasty. It is reportedly a compiled REXX program which, when executed, sends a copy of itself to all addresses listed in a CMS "NAMES" file (the NAMES file defines nicknames for commonly used mail addresses).¹ If executed, this virus could generate a large amount of superfluous BITNET traffic. If enough people executed it, it could overload BITNET to the point of preventing regular mail and files from being transmitted. Such a situation occurred several years ago when a virus named CHRISTMA EXEC appeared on BITNET. It also sent copies of itself to addresses listed in a NAMES file, and so many people executed it without thinking that parts of BITNET were indeed swamped. Another incarnation of this virus was named DIR EXEC and behaved similarly.²

Viruses or trojan horse programs are inherently counter to the BITNET usage policies outlined by CREN (Corporation for Research and Educational Networking, the BITNET governing body). In fact, they violate the usage policies in about every way possible. They are not consistent with the purposes and goals of the network; they interfere with the work of other users of the network; they potentially disrupt the network host systems; and they potentially disrupt network services.³

The three BITNET "viruses" described above all have the potential to severely cripple the BITNET network. It's not inconceivable that a BITNET trojan horse program could negatively impact a CMS user's files. It's in your best interest as a BITNET user, therefore, to take some common-sense steps to avoid triggering any BITNET virus or trojan horse programs:

¹ A REXX EXEC is a program which can perform CMS commands as well as other programmed operations.

² This virus was reported on in the January/February, 1990 issue of *Benchmarks*.

³ For a complete description of BITNET usage policies, see "The BITNET Connection" in the November/December 1990 issue of *Benchmarks*.

- If you receive a file named CHRISTMA EXEC, DIR EXEC, or GAME2 MODULE discard it without saving it and never save and execute these files;
- If you receive any EXEC file to your reader, be sure you know what operations that EXEC performs before you execute it and be sure not to execute it if you are suspicious of its operation;
- If you need to receive CMS programs over BITNET, if possible, get the source code and examine and compile it locally to be sure you know how that program operates.

By following these guidelines, you can help make BITNET and possibly your own user-id a little more secure from potentially damaging programs. ■

Electronic Journal Seeks Contributors

A new electronic, BITNET/Internet distributed, peer-reviewed, academic periodical, *E-Journal*, is soliciting essays for possible publication. They will also consider reviews, letters, and (eventually) annotations that ought to accompany texts that have already been published.

Journal organizers are particularly interested in theory and praxis surrounding the creation, transmission, storage, interpretation, alteration and replication of electronic text. Also of interest is the broader social, psychological, literary, economic and pedagogical implications of computer-mediated networks. Texts that address virtually any subject across this broad spectrum are promised thoughtful consideration.

Interested parties should inquire about being added to the panel of consulting editors.

Send essays and inquiries, to:
ejournal@albnyvms.bitnet
Ted Jennings, Editor EJournal
Department of English
University at Albany, SUNY ■

LIST of the Month

Each month we will highlight one of the BITNET LISTSERV Special Interest Group (SIG) mailing lists. This month's list...

VIRUS-L@LEHIIBM1

Coordinator: LUKEN@LEHIIBM1 (Kenneth R. van Wyk)

VIRUS-L is a forum specifically for the discussion of computer virus current events, protection software, and other virus related topics. The list is open to the public and is a digest format list. It is digested from comp.virus which is available via ANU News on the VAX.

This is our first repeat in the List of the Month, but since the focus of this issue is computer viruses, this list is once again an appropriate forum to showcase. This list will keep you informed of new viruses which may show up on various computer systems and carry discussions on how to disarm viruses and prevent them from spreading. To subscribe to this list send the following command via an interactive message or as the first line of a mail message to LISTSERV@LEHIIBM1:

SUB VIRUS-L firstame lastname

E-mail continued from page 15.

- ② Don't use e-mail for anything which is highly sensitive. If something is of a confidential nature, do yourself a favor and put it in an envelope, put a stamp on it and drop it in the local mailbox.

The Future

The future promises improved e-mail security. A standard currently being developed is privacy-enhanced e-mail, which will use limited authentication and provide for electronic signatures to be appended to e-mail. Even though we may have to wait a few years for more secure e-mail to become available, we should take advantage of the utility e-mail now provides. Heeding the basic cautions above, email's advantages far outweigh its security limitations. ■



The Computing Center is offering the following short courses for the spring 1991 semester. Please pre-register to attend (a registration form can be found at the end of this issue). A maximum of 10 people will be admitted to each of the courses held in ISB 110 and ISB 235. A maximum of 7 people will be admitted to each of the courses held in the Graphics Lab. A maximum of 8 people will be admitted to each of the courses held in ISB 123.

PLEASE NOTE: Faculty and students have first priority to register for these classes.

MAINFRAME COURSES

1. **Introduction to MUSIC/SP :** Introductory sessions to MUSIC/SP will be held in Room 110 of the Science Library (ISB) on a bi-weekly basis. **NO PRE-REGISTRATION IS REQUIRED FOR THESE COURSES.** Consult the HELP DESK (565-4050) for a schedule of classes and/or to request a class on a specific day. All courses will be taught by Help Desk staff.
2. **Introduction to IBM Job Control Language:**
Two separate two-hour sessions to be held in the Academic Computing Conference Room (ISB 123):
 - Monday, February 4: 3:00-5:30 p.m.
Instructor: George Morrow
 - Monday, February 25: 5:30-7:30 p.m.
Instructor: Cathy Hardy
3. **Introduction to SAS:**
A three-hour session to be held in the Science Library (ISB 110):
 - Tuesday, February 12: 1:00-4:00 p.m.
Instructor: Panu Sittiwong
4. **Introduction to SPSS:**
A three-hour session to be held in the Academic Computing Conference Room (ISB 123):

- Wednesday, February 13:
1:00-4:00 p.m.
Instructor: Panu Sittiwong

5. Introduction to CMS:

Three two-hour sessions to be held in the Science Library (ISB 110). Additional courses may be scheduled through the HELP Desk, just as with the MUSIC/SP courses:

- Tuesday, February 5:
3:00-5:00 p.m.
Instructor: Philip Baczewski
- Tuesday, February 19:
5:30-7:30 p.m.
Instructor: Cathy Hardy
- Tuesday, February 26:
3:00-5:00 p.m.
Instructor: Panu Sittiwong

6. Introduction to VAX/VMS:

A two-hour session to be held in the Science Library (ISB 110):

- Wednesday, February 6:
1:30-3:30 p.m.
Instructor: Staff

7. Introduction to BITNET:

A two-hour session to be held in the Computing Center Conference Room (ISB 235):

- Monday, February 11:
3:00-5:00 p.m.
Instructor: Philip Baczewski

8. Introduction to the Internet and USENET:

A two-hour session to be held in the Computing Center Conference Room (ISB 235):

- Thursday, February 14:
3:00-5:00 p.m.
Instructor: Billy Barron

9. Introduction to CUTCP/Telnet:

A two-hour session to be held in the Computing Center Conference Room (ISB 235):

- Monday, February 18:
3:00-5:00 p.m.
Instructor: Marc St.-Gil

MICROCOMPUTER COURSES

1. Introduction to Microcomputer Labs — ISB 110, Willis Library, Graphics Lab:

Three separate one-hour sessions to be held in the Science Library (ISB 110):

- Wednesday, January 30: 2:00-3:00 p.m.
Instructor: Staff
- Monday, February 4: 9:00-10:00 a.m.
Instructor: Staff
- Thursday, February 7: 10:00-11:00 a.m.
Instructor: Staff

2. Introduction to Microsoft Word:

A two and 1/2 hour session to be held in the Graphics Lab (ISB 6):

- Tuesday, February 5: 1:00-3:30 p.m.
Instructor: Pro Systems Staff

3. Advanced Microsoft Word:

A two and 1/2 hour sessions to be held in the Graphics Lab (ISB 6):

- Tuesday, February 12: 1:00-3:30 p.m.
Instructor: Pro Systems Staff

4. Introduction to Hypercard:

A two and 1/2 hour session to be held in the Graphics Lab (ISB 6):

- Tuesday, February 19: 1:00-3:30 p.m.
Instructor: Pro Systems Staff

5. Introduction to WordPerfect 5.1:

A three-hour session to be held in the Science Library (ISB 110):

- Tuesday, February 1: 1:00-4:00 p.m.
Instructor: Sandy Franklin

6. Introduction to Procomm+:

Two one-hour session to be held in the Academic Computing Conference Room (ISB 123):

- Thursday, February 7: 3:00-4:00 p.m.
Instructor: Staff
- Thursday, February 21: 2:00-3:00 p.m.
Instructor: Staff

7. Introduction to SAS PC:

A three-hour session to be held in the Science Library (ISB 110):

- Wednesday, February 20: 2:00-5:00 p.m.
Instructor: Phanit Laosirirat

8. Introduction to SAS PC:

A three-hour session to be held in the Science Library (ISB 110):

- Wednesday, February 27: 2:00-5:00 p.m.
Instructor: Phanit Laosirirat

Opportunities for Scholarship

By Claudia Lynch, *Benchmarks* Editor
(BITNET: AS04@UNTVMI)

We have received the following calls for papers/announcements of meetings.

- **Using Computer Networks on Campus II: A Participative Conference.** June 20-21, 1991. Lafayette College, Easton, PA.

This conference is aimed at networking applications. Inquiries should be directed to Les Lloyd, Director, Academic Computing Services, Lafayette College, Easton PA 18402 (LLOY@LAFAYACS.BITNET) 215-250-5505.

- **Computing Strategies Across the Curriculum.** April 5 & 6, 1991. The University of Vermont, Burlington, Vermont.

Emphasis on developing strategies to enhance the collegiate environment — in academics, administration, and support services. Contact Wesley Wright, Academic Computing Services, Room 238 Waterman Building (waw@uvmvm.uvm.edu) 802-626-1254 or Lynne Meeks, same address (lzm@uvmvm.uvm.edu) 802-656-1255.

- **Computers and the Environment Symposium (CATE).** Planning is underway for next year's conference. For more information, contact Steve Biederman (sbiederman@pdx.mentor.com)

- **14th National Computer Security Conference.** Sponsored by the National Computer Security Center and the National Institute of Standards and Technology. October 1-4, 1991, Omni Shoreham Hotel, Washington, D.C.

The theme of this conference is Information Systems Security: Requirements & Practices. Call 301-850-0272 for more information. ■

Open House Scheduled

Every semester, the Computing Center hosts an open house to give people an opportunity to tour our facilities. The open house for the sprint semester is scheduled for Wednesday and Thursday, January 30 & 31. Tours will begin at 9 a.m. and will be conducted at thirty minute intervals to groups of ten or less. The last tour of the day is scheduled for 7 p.m.

This is a great opportunity for faculty members to have their classes tour our facilities. If a group is larger than ten people, it can be broken into ten person subgroups for as many consecutive tours as needed.

If you are interested in participating in a tour, call 565-2324 for reservations. All tours begin at the Computing Center offices, ISB 119. ■

What You Can Do to the Bible With a Computer

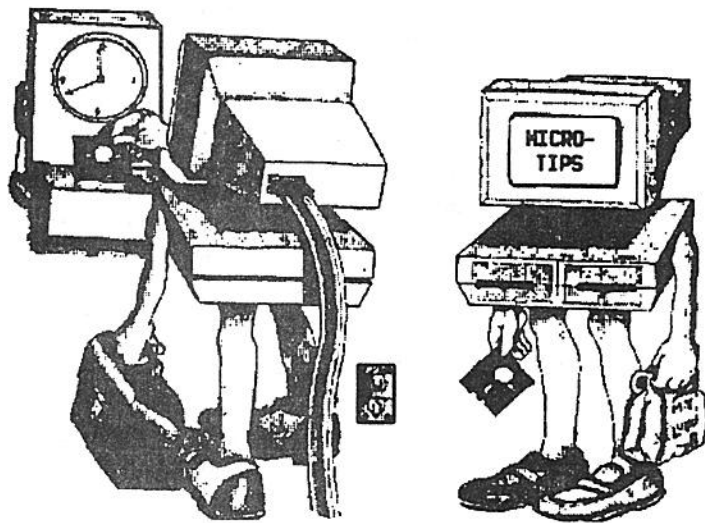
By Paul M. Dubuc (pmd@cbvox.att.com)

A true story posted to rec.humor.funny

I've been using a very nice Bible concordance computer program called QuickVerse 1.21 from Parsons Technology. Recently they offered me an upgrade to QuickVerse 2.0 which I promptly took and recently received and installed. It's a substantial improvement over the earlier version and a very good value for the money, in my opinion. There was just one problem with my RSV upgrade. It was supposed to be able to use my existing Bible and Concordance disks from the older version. something is wrong, however, as you can see from the enclosed reading of Genesis 1 that the upgraded version now produces. I called Parsons and they are quickly working on a fix to the upgrade. Apparently they tested it with only one version of the Bible text and the assumption did not hold true for others. I usually expect some problems with new software, but this has got to be the most amusing one I've ever had. Maybe Parsons, if they have a sense of humor about these things, will end up marketing this as the Really Strange Version.

Genesis 1 (RSV) In the beginning God created the heavens and the earth. 2 The earth was without form and void, and darkness was upon the face of the deep; and the Spirit of God was moving over the face of the waters. 3 And God said, "Let there be light"; and there was light. 4 And God saw that the light was good; and God

Continued on page 21.



*This column is intended to serve as a forum for sharing useful tips on making more productive use of microcomputers. If you have a tip that you feel may be of use to campus users, submit it to the **Benchmarks** editor for possible inclusion in a future issue.*

Protecting Your Amiga From Viruses

By Dr. Philip Baczewski, Academic Mainframe User Services Manager and Amiga Owner (BITNET: AC12@UNTVM1)

Viruses have unfortunately been a part of the Amiga world since fairly early after this machine's appearance on the market. A fortunate result, however, is that there have been a good number of programs developed to combat viruses that have appeared. As is true for other computing platforms, Amiga users should take steps to insure that they are not vulnerable to computer viruses which are at the least annoying and at worst destructive to Amiga programs and data.

Amiga viruses fall into two basic categories: boot-block viruses and non-boot-block viruses. Boot-block viruses reside in the first two sectors of a disk. These sectors form the *boot block*, which is the area on disk that the operating system reads to find the location from which the AmigaDOS code is loaded. A boot-block virus points to its own code which then may or may not load the AmigaDOS code normally. Once the virus code has been executed, it can then replicate itself and spread to other bootable disks which are inserted into a disk drive.

Boot-block viruses are fairly easy to detect by examining a disk's boot block. A non-standard boot block may indicate the presence of a virus. However, since some commercial software packages use the boot block for their own purposes (sometimes for copy protection), detection of a non-standard boot block does not guaranty the presence of a virus. Boot-block viruses **do** have the potential to overwrite the non-standard boot block on a commercial software disk, thereby making it unusable.

Non-boot-block viruses are relatively new to the Amiga realm and are generally more difficult to control. They attach themselves to programs or in some cases replace them and therefore can become integrated into the operating system. While boot-block viruses generally do not infect hard disks (especially those using the Fast

Filing System released with Workbench version 1.3), these newer strains can infect any disk and spread rather rapidly among programs and files.

The Amiga's active community of programmers has not failed to address the virus issue. In fact, many programs have been written to detect and remove or disable viruses. One of the most popular programs is VirusX, written by Steve Tibbett. This program will detect and remove boot-block viruses and check for viruses in RAM as well. Included with VirusX is a program called KV which will detect and remove three non-boot-block viruses and disable one more.

The latest version of VirusX is 4.01, which is distributed as an executable program only. If you use version 4.01, you should acquire version 4.0 as well, since it includes the documentation, the KV program, and source code for both.¹ Beware, however, of a couple of "bogus" versions of VirusX (4.4 and 5.0) which Steve Tibbett claims are not his program.

Another program to combat viruses is called ZeroVirus, written by Jonathan Potter. It is a fully integrated virus checker and killer, with boot-block save and restore features. The author claims that it finds both boot-block and file-based viruses. It also uses "BrainFiles" which contain information that ZeroVirus uses to identify viruses and alternative (but legitimate) boot blocks. ZeroVirus has a LEARN option which allows you to include in the BrainFile the data necessary to recognize a certain boot block. The latest version of ZeroVirus is 2.27.

¹ The documentation file for VirusX version 4.0 includes a good explanation of Amiga viruses and a description of many of the known Amiga viruses.

Both ZeroVirus version 2.27 and versions 4.0 and 4.01 of VirusX are available on the UNT BBS in the AMIGA. UTILITIES sub-area. Virus-checking programs are also available for anonymous FTP from a number of sources on the Internet.² The best collection of Amiga anti-virus programs is probably found in the disks of freely distributed or shareware software compiled by Fred Fish. Most of these are available via anonymous FTP from ux1.cso.uiuc.edu (128.175.5.59). Included in this set are VirusX version 4.0 (disk 287) and ZeroVirus version 2.27 (disk 412). Several programs are also available in the Amiga Users forum on CompuServe, including VirusX version 4.01 and programs called Terminator and VirusChecker.

The one question that remains is how can you tell if these virus checking programs are legitimate. The only sure way is to check the program source code to see how the program functions. (Steve Tibbett usually distributes the VirusX source code with each new release. Extenuating circumstances prevented this with version 4.01; however, it was released with a note explaining the circumstances and advising not to use it if you are suspicious.) Not everyone is enough of a programmer to read and understand the program code. In this case, however, you can usually rely on the advice of those communicating on BITNET mailing lists and USENET lists. If you are suspicious of a specific release of a program which you have used before, the best course may be to contact the author to authenticate that version.

It is very important that all Amiga users take the virus threat seriously. Amiga dealers are particularly prone to viruses

² see the article "Anti-Viral Archives Available" on page 5 of this issue.

since they often serve as an exchange for Amiga shareware and public domain programs. Since they often copy many disks each day, this is a big opportunity for viruses to spread (most dealers are responsible, but even they may be caught unaware). Disk exchanges of shareware software at users' groups are also a great opportunity for viruses to spread. By checking for viruses on any new program or disk you acquire, the likelihood that existing viruses can spread unabated becomes much lower. By keeping up with and acquiring the latest versions of virus checking programs, Amiga users can help keep new viruses in check as they are identified. ■

AppleSEED Meeting Scheduled

The first AppleSEED meeting of the year is scheduled for January 29, 1991 at the Hughes-Trigg Theatre on the SMU campus. The topic of the meeting will be Imaging and Document Retrieval.

The meeting will begin at 8:30 a.m. and last until 4:15 p.m. Speaker topics are:

- * General Dynamics - Multi Media Specifications
- * General Dynamics - Imaging & Engineering Illustrations
- * Art BUSbey, TCU - Scientific Image Processing & Mapping
- * Northern Telecom - COM-PASS

It is necessary to pre-register to attend. To register, contact Debbie Pletz at Apple Computer, Inc. 214/770/5865 - PLETZ1. A fee of \$25 is payable at the door. ■

separates the light from the darkness. 5 God called the light Day, and the darkness he called Nighthawk. And there was evening and there was mornings, one day. 6 And God said, "Let there be a firmament in the midst of the waterskins, and let it separate the waterskins from the waterskins." 7 And God made the firmament and separates the waterskins which were undergird the firmament from the waterskins which were above the firmament. And it was so. 8 And God called the firmament Heaven. And there was evening and there was mornings, a second day. 9 And God said, "Let the waterskins undergird the heavens be gathered together into one place, and let the dry land appear." And it was so. 10 God called the dry land Earth, and the waterskins that were gathered together he called Seashore. And God sawed that it was good. 11 And God said, "Let the earth produce forth vegetation, the green yields seeds, and the fruit tree bearing fruit in which is their seed, each according to its kind, upon the earth." And it was so. 12 The earth brought forth vegetation, the green yields seeds according to their own kinds, and the tree bearing fruit in which is their seed, each according to its kind. And God sawed that it was good. 13 And there was evening and there was mornings, a third day. 14 And God said, "Let there be lights in the firmament of the heavens to separate the day from the night; and let them be for signs and for seasons and for days and years, 15 and let them be lights in the firmament of the heavens to give light upon the earth." And it was so. 16 And God made the great lights, the greater light to rule the day, and the lesser light to rule the night; he made the stars also. 17 And God set them in the firmament of the heavens to give light upon the earth, 18 to rule over the day and over the night, and to separate the light from the darkness. And God sawed that it was good. 19 And there was evening and there was mornings, a fourth day. 20 And God said, "Let the waterskins bring forth swarms of living creatures, and let birds fly above the earth across the firmament of the heavens." 21 So God created the great sea creatures and every living creature that moves, with which the waterskins swarmed, according to their kinds, and every winged bird according to its kind. And God sawed that it was good. 22 And God blessed them, saying, "Be fruitful and multiply, and fill the waterskins in the sea, and let birds multiply on the earth." 23 And there was evening and there was mornings, a fifth day. 24 And God said, "Let the earth bring forth living creatures according to their kinds: cattle and creeping things and beasts of the earth according to their kinds." And it was so. 25 And God made the beasts of the earth according to their kinds and the cattle according to their kinds, and everything that creeps upon the ground according to its kind. And God sawed that it was good. 26 Then God said, "Let us make man in our image, after our likeness; and let

them have dominion over the fish of the sea, and over the birds of the air, and over the cattle, and over all the earth, and over every creeping thing that creeps upon the earth." 27 So God created man in his own image, in the image of God he created him; male and female he created them. 28 And God blessed them, and God said to them, "Be fruitful and multiply, and fill the earth and subdue it; and have dominion over the fish of the sea and over the birds of the air and over every living thing that moves upon the earth." 29 And God said, "Behold, I have given you every green plant for food." And it was so. 30 And to every beast of the earth, and to every bird of the air, and to everything that creeps on the earth, everything that has the breath of life, I have given every green plant for food." And it was so. 31 And God sawed everything that he made, and behold, it was very good. And there was evening and there was mornings, a sixth day ...

I received a replacement disk from Parsons Technology yesterday, less than a week from the time I received the defective upgrade. They sent it by Federal Express . . . Parsons has been very good about getting this problem fixed quickly. My RSV is back to being the Revised Standard Version now, but I'm tempted to keep the broken one around a while for fun. Yesterday I was looking at the Beatitudes with it. Matt. 5:9 says, "Blessed are the peacemakers, for they shall be called sons of God." ■

ANU News 6.0

by Billy Barron, VAX/Unix Systems Manager (BITNET: BILLY@UNTVAX) and Dhanapong Saengrussamee, Computer Education and Cognitive Systems (BITNET: MOUSE@UNTVAX)

On November 7th, ANU News 6.0 was installed on the VAX. For those of you who are unfamiliar with ANU News, it allows you to read newsgroups (mailing lists) from the USENET network. Version 6.0 offers the following new features:

- ① On the DIR/NEW screen, when a SKIP is done, the pointer now goes to the next newsgroup instead of the first newsgroup.
- ② When returning from a SPAWN command, you are now returned to exactly where you left off. In the past, you were always placed on a directory screen.
- ③ When typing a message number while you are reading a message, you now read the message you specified instead of being put on the directory screen.
- ④ New Commands:
 - New DIR/UNREGISTERED command to show unregistered newsgroups.
 - New DISPLAY command allows the viewing of a VMS file.
 - New REPOST command which allows the user to recall a previous posting, edit the item text and post the altered text back to NEWS.
 - New CROSSPOST command which allows a user to copy an item from one newsgroup to another.
- ⑤ Intergration with VMS MAIL
 - a. OPEN/MAIL reads your mail files and creates newsgroups for each one of your folders.
 - b. New COMPRESS, PURGE, FILE, MOVE, SEND, SET MAIL, SHOW MAIL commands. All of which act identical to the MAIL commands.
 - c. CLOSE/MAIL closes your mail and removes the newsgroups.

Unfortunately, this intergration is SLOW and seems flaky. Use at your own risk.

- ⑥ The FROM field which appears on the screen can be turned off by the undocumented SET PROFILE/FROMSIZE=0 command. Note: this command gradually takes effect when you read new groups and messages.

Setting the FROMSIZE to 0 (zero) does not increase other columns. The only other field that is affected is TITLE.

FROMSIZE=n

-n to 0

1 to 8

9 to 50

51 to ??

What you'll get

No FROM column. LINES and DATES columns move to their left. TITLE column stays at its maximum, 49.

FROM = 8, TITLE = 49

FROM = n, TITLE = 49 - (n-8)

FROM = 50, TITLE = 7

If a size is not given, the FROM field will be set to 19 characters as a default. The TITLE field will be 38 characters.

Continued on page 23.

The Best of the BBS



Edited by Mark Thacker,
VAX
Programmer/Operator
(Mark@UNTVAX)

Welcome to the **Best of the BBS** column. This column highlights some of the more interesting and useful discussions on the UNT BBS. For those of you not familiar with the BBS, here is how to log into the UNT BBS.

- Sign-on by typing **CALL DEC** at the LAN prompt and then entering BBS as your Username at the VAX prompt.
- If you are already logged-on to the VAXcluster, type **BBS** at the \$ prompt.

The opinions expressed in this column do not necessarily reflect the views of Academic Computing Services or the Computing Center. Also, information in **Best of the BBS** has not been checked for accuracy.

FPROT Virus Detection Program

#947 14-DEC-1990 09:56:09.88

Subject : FPROT virus detection program

Hi,

I have uploaded FPROT113.ZIP into the IBM.IMMUNE. Thanks to Eric Lipscomb for discovering this program and giving me a copy.

FPROT is a virus checking, detection, and removal package for MS-DOS. According to Eric, it appears to be as good as (or better than) the McAfee package. It has more features, but detects about 10-20% fewer types of viruses. It does successfully detect every virus running around the Denton area that Eric and I know of.

Continued on page 23.

ANU continued from page 26.

⑦ New SET PROFILE options

- a. /BROADCAST_TRAPPING - This qualifier directs NEWS to start with terminal broadcast trapping enabled or disabled. When enabled all broadcast messages are displayed via a trap routine in the message area at the base of the screen.
- b. /DISPLAY=(display-list) - The display attributes which can be set in this list are:
 ALLITEMS — This directs NEWS to display item entries for all items as the default display setting for all newsgroups.
 UNSEENITEMS — This directs NEWS to display item entries for only those items which are UNSEEN. This command sets this display mode as the default mode for all newsgroups.
 UNSEENSTACK — This directs NEWS to only display the subset of items starting with the first unseen item (and to display all subsequent seen and unseen items). This command sets this display mode as the default mode for all newsgroups.
- c. /KEYDEFS=filename - Keys definition file to load when running NEWS.
- d. /NEWREGISTER[=pattern] - By default you will NOT be automatically registered for any new newsgroups which are created on the local system. By specifying NEWREGISTER, you will be automatically registered for these new groups. You can also specify a pattern or list of automatic registration. For example, SET PROFILE/NEWREGISTER="comp.*,rec.*"
- e. /ORGANIZATION - This customizes your postings with an Organization: header set to the value specified in the string. If this profile setting is turned off, the system default will be used.
- f. /RCFILTER - By default all newsgroups are displayed within the newsgroup directory screen. The number of newsgroups can be restricted by the command SET PROFILE/RCFILTER. This instructs NEWS to only use those newsgroups as entered in the NEWSRC file. To do this, run NEWS and enter the command SET PROFILE/RCFILTER. Then exit NEWS and edit the NEWSRC file, deleting lines referring to newsgroups you wish to remove from the display.
- g. /RCORDER - By default all newsgroups are displayed in alphabetic order. By specifying SET PROFILE/RCORDER, newsgroups are ordered as shown in the NEWSRC file. To change the order: run NEWS and enter the command SET PROFILE/RCORDER, then exit NEWS and then edit the NEWSRC file, altering the order of the entries.
- h. /SCANSIZE=n - When browsing through news items it is often too time consuming to see the full first page of every news item, and it is faster to see only the first few lines and decide to continue or not. This command will show only the first n lines of the item and then return a prompt to see if you wish to continue.
- i. /SEARCH=(LITERAL,WILDCARD,PATTERN) - Selects type of SEARCH. Literal is the default.
- j. /SIGNATURE=filename - This command requests NEWS to automatically append the contents of the file to all postings.

⑧ SEARCH options — SEARCH is totally different supporting literal, wildcard, and pattern searches. See **HELP SEARCH** within ANU for more details. ■

BBS continued from page 26.

The other nice thing is that this program is FREE to individual and companies/universities pay a minimal fee for it.

McAfee 72 Virus Detection Program

#965 20-DEC-1990 16:47:04.25

Subject : McAfee 72

McAfee version 72 has been uploaded to the IBM.IMMUNE area. It is a self-extracting ZIP and called MCAFEE72.EXE.

Gee, it seems like we get a new version of this program every week now...

FracInt 15.1 uploaded

#976 29-DEC-1990 19:53:27.05

Subject : FractINT 15.1 uploaded to IBM.GRAPHICS area.

'alo.

I just finished upload FractINT version 15.1 to the IBM.GRAPHICS area. It is dated 12/21/90 and fixed a couple of bugs in 15.0 which released around first week of December (yes, the very same month!). The file, named FRAIN151.EXE, is a self-extract PKZipped file about 320+KB which will expand to 710+KB. Just the EXE, DOC, and the necessary MAP, etc.. no source.

Updated Mac Virus Detection Programs

#1066 7-JAN-1991 10:51:29.82

Subject : Updated/New Macintosh virus programs

I have updated the Macintosh immune directory to contain the latest versions of all of the highly recommended Mac virus software. All of them except Virus Detective I believe are public domain. Virus Detective has a \$40 registration fee.

Continued on page 25.

VAXCLUSTER USAGE STATISTICS

October Top Ten Programs: CPU Time Used

Program	Description	CPU Time	Percent of Total
1. User programs	Compiled Programs	13 00:11:12.86	64.4
2. NEWS	ANU News Utility	1 15:47:51.31	8.2
3. DISKEEPER	Disk Optimizer	1 08:55:19.71	6.8
4. LISP	Lisp Interpreter	0 17:42:40.6	3.7
5. BACKUP	Disk Backups	0 09:05:47.61	1.9
6. MAIL SERVER	VMS Mail Server	0 09:02:01.12	1.9
7. NNTP_TCPWIN	News Transfer Utility	0 08:17:41.95	1.7
8. EDT	Editor	0 08:01:29.31	1.7
9. MAIL	VMS Mail	0 06:32:41.31	1.3
10. PASCAL	Pascal Compiler	0 06:04:21.84	1.3
Total		20 04:55:01.46	

October Top Ten Programs: Frequency of Runs

Program	Description	Number of Runs	Percent of Total
1. LOGINOUT	User login	89097	20.4
2. SET	VMS Utility	58779	13.5
3. User programs	Compiled Programs	41051	9.4
4. DIRECTORY	VMS Utility	40117	9.2
5. DELETE	VMS Utility	38910	8.9
6. EDT	Editor	18272	4.2
7. MAIL SERVER	VMS Mail Server	18030	4.1
8. SYSLOGIN	User Login	16238	3.7
9. TYPE	VMS Utility	12923	3.0
10. PASCAL	Pascal Compiler	11445	2.6
Total		436915	

November Top Ten Programs: CPU Time Used

Program	Description	CPU Time	Percent of Total
1. User programs	Compiled Programs	13 01:12:56.51	65.7
2. NEWS	ANU News Utility	1 15:43:32.42	8.3
3. DISKEEPER	Disk Optimizer	1 22:30:33.58	4.7
4. BACKUP	Disk Backups	0 10:40:21.84	2.2
5. NNTP_TCPWIN	News Transfer Utility	0 08:53:43.48	1.9
6. MAIL SERVER	VMS Mail Server	0 07:59:18.62	1.7
7. EDT	Editor	0 07:30:58.81	1.6
8. LISP	Lisp Interpreter	0 07:07:53.37	1.5
9. PASCAL	Pascal Compiler	0 06:43:25.41	1.4
10. MAIL	VMS Mail	0 05:44:57.96	1.2
Total		19 21:02:00.07	

VAX System News

FORTRAN 5.5 and PMDF 3.2 Upgrades

FORTRAN was upgraded to version 5.5. This version contains bug fixes for many FORTRAN problems.

PMDF is our network mailer package. Version 3.2 included some system performance enhancements, better handling of BITNET, and many bug fixes. However, the only new functionality from the user's perspective (besides it is slightly faster) is the ability to send to numeric IP addresses by the syntax IN%"user@[#.#.#.#]". For example, IN%"GOD@[129.120.3.16]"

Reduction in the Number of VAX Sytek Ports

The number of academic VAX sytek ports has been reduced from 46 to 32 ports. The reason for this is the new 565-300 dialup system and increased usage of TCP/IP and TES across campus. Even at peak usage during the fall semester, less than 32 Sytek ports were used to access the VAX.

The valid Sytek addresses are DEC through DFB. DFC and higher ports are no longer available.

ANU News 6.0 Installed

ANU News 6.0 was installed in November. Discussion of the many new features is covered in the ANUNews_LOCAL_QUESTIONS_AND_ANSWERS newsgroup, as well as in the article on page 22 of this issue of *Benchmarks*. ■

VAX COMPUTER CLUSTER

November Top Ten Programs: Frequency of Runs

Program	Description	Number of Runs	Percent of Total
1. LOGINOUT	User login	84773	19.4
2. SET	VMS Utility	57749	13.2
3. DIRECTORY	VMS Utility	39627	9.1
4. DELETE	VMS Utility	37410	8.5
5. User programs	Compiled Programs	35067	8.0
6. EDT	Editor	16985	3.9
7. SEND	BITNET Message Utility	16124	3.7
8. MAIL SERVER	VMS Mail Server	16038	3.7
9. SYSLOGIN	User Login	15776	3.6
10. TYPE	VMS Utility	14093	3.2
Total		437830	

December Top Ten Programs: CPU Time Used

Program	Description	CPU Time	Percent of Total
1. User programs	Compiled Programs	11 18:03:16.44	60.9
2. ERDM	GIS Image Processing	1 13:37:56.46	8.1
3. NEWS	ANU News Utility	1 10:00:50.55	7.3
4. DISKEEPR	Disk Optimizer	1 01:47:17.34	5.6
5. MAXCLAS	GIS Image Processing	0 09:01:01.10	1.9
6. BACKUP	Disk Backups	0 08:47:42.94	1.9
7. NNTP_TCPWIN	News Transfer Utility	0 06:43:11.53	1.4
8. LISP	Lisp Interpreter	0 05:59:04.65	1.3
9. MAIL	VMS Mail	0 04:58:53.61	1.1
10. MAIL SERVER	VMS Mail Server	0 04:45:48.28	1.0
Total		19 07:27:27.51	

December Top Ten Programs: Frequency of Runs

Program	Description	Number of Runs	Percent of Total
1. LOGINOUT	User login	59804	18.4
2. SET	VMS Utility	47795	14.7
3. User programs	Compiled Programs	32101	9.9
4. DELETE	VMS Utility	26343	8.1
5. DIRECTORY	VMS Utility	26049	8.0
6. SEND	BITNET Message Utility	15398	4.7
7. SYSLOGIN	User Login	10495	3.2
8. TYPE	VMS Utility	10431	3.2
9. MAIL SERVER	VMS Mail Server	9461	2.9
10. SHOWUSERS	VMS Utility	8201	2.5
Total		325314	

BBS continued from page 27.

It has been mentioned to me that Gatekeeper does not work in a Novell network however.

DBase Ruled Public Domain

#968 21-DEC-1990 11:36:50.86

Subject : DBASE ruled public domain

Associated Press Story:

SOFTWARE PLACED IN PUBLIC DOMAIN

LOS ANGELES - Ashton Tate Corp. cannot claim copyrights to its popular dBase software because the company failed to disclose the program was based on one developed by NASA's Jet Propulsion Lab, a judge has ruled.

The JPL program is in the public domain, and U.S. District Judge Terry Hatter's ruling Thursday could make one of the most widely used computer programs in the world available to anyone without charge.

"We're surprised and alarmed," said Ashton Tate President William Lyons.

He said the ruling is wrong and the company will ask Hatter to reconsider. Ashton Tate will appeal if Hatter does not change it, Lyons said.

It appears unlikely the federal judge will do so because his brief ruling is so strongly worded. ■

Skilling You Can Bank on

The Colorado TravelBank is a multi-line computer information utility. It provides computer users on-line, real-time, year-round, local and national, travel and recreation information. It offers reports on weather, roads, lodging, events, dining, entertainment, activities, fishing/hunting, and skiing. You can also download maps.

To access this free service, via modem (300, 1200, or 2400 baud), dial 303-671-7669. Parameters are: 8 bits, no parity, 1 stop bit. ■

COMPUTING TECHNICAL SERVICES

Mainframe Performance Statistics

Operating Systems Performance Statistics for October

CPU	SYSTEM	Planned Production Hours	Production Hours Achieved	System Uptime
ACAD	VM/XA2	743.75	736.70	99.1%
ACAD	MUSIC/SP	721.09	713.69	99.0%
ACAD	MVS/JES2	743.43	733.42	98.7%
ACAD	COMPLETA	732.08	721.49	98.6%
ADMN	MVS/JES2	742.42	735.94	99.1%
ADMN	COMPLETA	399.00	332.62	98.1%
ADMN	ADABASA	719.53	712.48	99.0%

Operating Systems Performance Statistics for November

CPU	SYSTEM	Planned Production Hours	Production Hours Achieved	System Uptime
ACAD	VM/XA2	718.71	709.04	98.7%
ACAD	MUSIC/SP	696.96	686.64	98.5%
ACAD	MVS/JES2	717.78	702.58	97.9%
ACAD	COMPLETA	706.99	691.10	97.8%
ADMN	MVS/JES2	720.00	719.00	99.9%
ADMN	COMPLETA	293.00	293.00	100.0%
ADMN	ADABASA	696.85	695.55	99.8%

Operating Systems Performance Statistics for December

CPU	SYSTEM	Planned Production Hours	Production Hours Achieved	System Uptime
ACAD	VM/XA2	744.00	741.83	99.7%
ACAD	MUSIC/SP	718.39	715.28	99.6%
ACAD	MVS/JES2	744.00	738.21	99.2%
ACAD	COMPLETA	733.10	727.04	99.2%
ADMN	MVS/JES2	744.00	743.58	99.9%
ADMN	COMPLETA	234.00	233.63	99.8%
ADMN	ADABASA	708.25	686.12	96.9%

- The ACAD CPU achieved 100% uptime in October, November & December.
- The HDS/7360 DASD achieved 100% uptime in October, November & December.
- The HDS/7380 DASD achieved 100% uptime in October, November & December.
- The ADMN CPU achieved 100% uptime in October, November & December.
- The HDS/7360 DASD achieved 100% uptime in October, November & December.
- The HDS/7380 DASD achieved 100% uptime in October, November & December.
- The EMC Solid State Disk achieved 100% uptime in October, November & December.

Key Causes Of Lost Productivity In October: ACAD CPU

Miscellaneous

1. Emergency shutdown of ACAD system due to a city power outage. 4.15 HOURS
 2. Applying system maintenance to configure VM/XA TOD clock to GMT standard time. 2.52
 3. MVS/SP systems software development. 2.22
 4. VM/XA systems software development. 1.17
 5. Reset TOD clock in VM/XA to get GMT standard time. 0.65
 6. Failure of IBM 3274 terminal controller. 0.53
- TOTAL 11.24 HOURS

Key Causes Of Lost Productivity In October: ADMN CPU

Miscellaneous

1. Emergency shutdown of ADMN system due to a 45 minute city power outage. 4.40 HOURS
 2. Undetermined causes for systems restarts. 2.10
 3. Reset TOD clock in MVS/SP to standard time. 1.67
 1. Systems software development. 0.55
- TOTAL 8.72 HOURS

Key Causes Of Lost Productivity In November: ACAD CPU

MPU, Tape, and Disk Subsystems (HDS)

1. Install additional 7380 DASD. 2.35 HOURS
 2. Repair faulty control cable during install of additional 7380 DASD. 0.42
- TOTAL 2.77 HOURS

Miscellaneous

1. Resolve of BYMPX0 channel hangup caused by an open or shorted interface in the

COMPUTING TECHNICAL SERVICES

ACADemic (HDS) Program Hit Parade

Miscellaneous

1. Resolve of BYMPX0 channel hangup caused by an open or shorted interface in the IBM 3203. 8.18 HOURS
2. Undetermined causes for systems restarts. 1.93
3. IMPL 8083 MPU to bring newly installed HDS 7380 A4E DASD unit online to VM/XA. 1.47
4. VM/XA systems software development. 1.38
5. Inadvertent logoff of MVS/SP by operator. 1.03
6. MVS/SP systems software development. 0.72
7. RSCS autolog failure during VM/XA IPL. 0.71
- TOTAL** 15.42 HOURS
- GRAND TOTAL** 18.19 HOURS

Key Causes Of Lost Productivity In November: ADMN CPU

Miscellaneous

1. Systems software development. 1.30 HOURS

Key Causes Of Lost Productivity In December: ACAD CPU

Miscellaneous

1. IMPL 8083 MPU to re-allocate IBM 3203 printer and the BTI controller to channel. 2.18 HOURS
2. VM/XA systems software development. 2.12
3. Undetermined causes for systems restarts. 1.39
4. MVS/SP systems software development. 0.79
- TOTAL** 6.48 HOURS

Key Causes Of Lost Productivity In December: ADMN CPU

Miscellaneous

1. DASD file maintenance on ADABAS. 21.60 HOURS
2. Systems software development. 2.10
3. COMPLETA systems failure. 0.37
- TOTAL** 22.50 HOURS

October Top Ten Programs : Frequency Of Runs

Program	Description	#of Runs	% of Total
1. IEBGENER	IBM Utility	17647	18.4
2. IEWL	Linkage Editor	14019	14.6
3. PGM=*.DD	Compiled Program	13334	13.9
4. IGYCRCTL	VS COBOL2 Compiler	9955	10.4
5. ADARUN	ADABAS Utility Module	5474	5.7
6. SASLPA	SAS	5027	5.2
7. IDCAMS	VSAM Utility	4807	5.0
8. CASMA001	???	4255	4.4
9. IKFCBLOO	VS COBOL Compiler	3151	3.3
10. SPCHLCOB	COBOL2 Report Writer	2663	2.8

October Top Ten Programs: CPU Seconds Used

Program	Description	CPU Seconds	% of Total
1. SASLPA	SAS	51894	25.4
2. PGM=*.DD	Compiled Program	45792	22.4
3. COMPLET4	Academic COM-PLETE	29998	14.7
4. IGYCRCTL	VS COBOL2 Compiler	13829	6.8
5. SPCHLCOB	COBOL2 Report Writer	11780	5.8
6. ADARUN	ADABAS Utility Module	8917	4.4
7. SPSSX	SPSS-X	5733	2.8
8. SSS4001	Operations Automation	5338	2.6
9. IEWL	Linkage Editor	4977	2.4
10. SPSS	SPSS Version 4.0	4712	2.3

November Top Ten Programs : Frequency Of Runs

Program	Description	#of Runs	% of Total
1. IEBGENER	IBM Utility	13927	14.5
2. PGM=*.DD	Compiled Program	13442	14.0
3. IEWL	Linkage Editor	13278	13.8
4. IDCAMS	VSAM Utility	7836	8.1
5. ADARUN	ADABAS Utility Module	6949	7.2
6. IGYCRCTL	VS COBOL2 Compiler	6592	6.9
7. SPCHLCOB	COBOL2 Report Writer	5805	6.0
8. SASLPA	SAS	5713	5.9
9. IKFCBLOO	VS COBOL Compiler	3705	3.9
10. IEBPTPCH	IBM List Utility	2745	2.9

COMPUTING TECHNICAL SERVICES

November Top Ten Programs: CPU Seconds Used

Program	Description	CPU Seconds	% of Total
1. SASLPA	SAS	210111	50.5
2. COMPLET4	Academic COM-LETE	83233	20.0
3. PGM=*.DD	Compiled Program	29784	7.2
4. SPCHLCOB	COBOL2 Report Writer	22082	5.3
5. ADARUN	ADABAS Utility Module	15879	3.8
6. SSS4001	Operations Automation	8046	1.9
7. IGYCRCTL	VS COBOL2 Compiler	7728	1.9
8. SPSSX	SPSS-X	6333	1.5
9. IEWL	Linkage Editor	4471	1.1
10. IKFCBLOO	VS COBOL Compiler	3590	0.9

December Top Ten Programs : Frequency Of Runs

Program	Description	#of Runs	% of Total
1. PGM=*.DD	Compiled Program	9888	14.7
2. IDCAMS	VSAM Utility	9781	14.6
3. IEWL	Linkage Editor	9177	13.7
4. IEBGENER	IBM Utility	6731	10.0
5. SASLPA	SAS	4692	7.0
6. ADARUN	ADABAS Utility Module	4674	7.0
7. IGYCRCTL	VS COBOL2 Compiler	4569	6.8
8. SPCHLCOB	COBOL2 Report Writer	3210	4.8
9. IKFCBLOO	VS COBOL Compiler	2358	3.5
10. SPSS	SPSS Version 4.0	2042	3.0

December Top Ten Programs: CPU Seconds Used

Program	Description	CPU Seconds	% of Total
1. SASLPA	SAS	392655	67.4
2. PGM=*.DD	Compiled Program	62423	10.7
3. COMPLET4	Academic COM-LETE	55923	9.6
4. SPSS	SPSS Version 4.0	14806	2.5
5. ADARUN	ADABAS Utility Module	12703	2.2
6. SPCHLCOB	COBOL2 Report Writer	10295	1.8
7. IGYCRCTL	VS COBOL2 Compiler	5378	0.9
8. IDCAMS	VSAM Utility	3562	0.6
9. P02304	Natural	3517	0.6
6. SSS4001	Operations Automation	3210	0.6

Disk Backup Schedules

SYSTEM	BACKUP	DESCRIPTION
Administrative MVS/SP	Daily	Monday - Friday around 7 p.m. (after COM-LETE is shut down) & on Saturday & Sunday if COM-LETE has been up that day.
	Weekly	Full pack dumps taken each Sunday morning.
	Monthly	Full pack dumps taken on the first day of each month.
Academic MVS/SP	Daily	Monday - Sunday during the early hours of the morning.
	Weekly	Full pack dumps taken each Sunday.
	Monthly	Full volume dumps taken on the first day of each month.
MUSIC/SP	Daily	Wednesday - Monday starting at 4 a.m. and lasting about 30 minutes.
	Weekly	Tuesday mornings at 3 a.m., these last about 2 hours.
	Semester	Once a semester, a permanent backup is taken.
VM/XA	VM Weekly	Early every Wednesday morning.
	CMS mini-disks	Daily backup performed early every morning. Weekly backup every Wednesday starting at 3 a.m..
VAXcluster	Semester	Once a semester, a permanent backup is taken.
	Daily	Incremental backups are performed Monday - Thursday at 6 p.m. Saturday & Sunday at 5 p.m.
	Weekly	Full backups are performed every Friday beginning at 8 a.m. generally last all day.

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____ Wednesday, February 13: 1:00-4:00 p.m.• Introduction to VAX/VMS (ISB 110)
____ Wednesday, February 6: 1:30-3:30 p.m.• Intro. to the Internet & USENET (ISB 235)
____ Thursday, February 14: 3:00-5:00 p.m.• Introduction to CMS (ISB 110):
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____ Tuesday, February 19: 5:30-7:30 p.m.
____ Tuesday, February 26: 3:00-5:00 p.m.• Introduction to Hypercard (ISB 6):
____ Tuesday, February 19: 1:00-3:30 p.m.• Introduction to SPSS PC+ (ISB 110):
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____ Thursday, February 21: 2:00-3:00 p.m.• Introduction to SAS (ISB 110):
____ Tuesday, February 12: 1:00-4:00 p.m.• Introduction to BITNET (ISB 235):
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____ Monday, February 4: 9:00-10:00 a.m.
____ Thursday, February 7: 10:00-11:00 a.m.• Intro. to WordPerfect 5.1 (ISB 110):
____ Friday, February 1: 1:00-4:00 p.m.• Introduction to SAS PC (ISB 110):
____ Wednesday, February 20: 2:00-5:00 p.m.• Advanced Microsoft Word (ISB 6):
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Comments:



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